

## OPEN LETTERS.

*To the Editors of the Botanical Gazette:*—Will you kindly allow the following few words of explanation in reference to certain statements made in a book review in the April number of your magazine? The writer first begs leave to thank the reviewer for the occasion thus given to make at the same time an explanation, or perhaps an extension, of the preface of the little book on plant anatomy. It is quite evident that it was the first effort or its kind ever undertaken by the author, and it is a somewhat consoling reflection that probably had a clearer and more definite statement been made of the purpose for which the book was written, it would have prevented, in some degree at least, certain unfavorable criticisms.

It was taken for granted that the title, *Elements of Plant Anatomy*, would of itself suggest the fact that the plan pursued by the author in teaching these "dry bones" of the science was an exact parallel to the modern one adopted by biological teachers in the different departments of descriptive work, or that known as the type system. According to this, a bird's-eye view of the field is first taken and a foundation laid upon which the superstructure is to be raised, either by lectures or text books of an advanced character or both. But nowhere in the book is it stated that it was designed *not* for teachers but for students, and to be used by them as a framework merely, upon which each individual teacher could build by filling out the outlines in his own way. It is in no way fitted for a reference book except for the learner.

It was therefore by design and not through accident or ignorance that the recent theories, such as those relating to nuclear division and the nature of the starch grain, were omitted and the simple elementary facts upon which the later investigations are based were alone considered. That a serious and disappointing error has been made in the determination of what is really elementary in character is certainly a matter to be regretted. At the same time, as the reviewer kindly suggests, it is a mistake which may easily be corrected in a future edition.

It is, however, quite otherwise with certain statements made in the review which must have resulted from a hasty or careless perusal of the text and it is to these especially that the author begs to call attention. That a misstatement or a misrepresentation of the facts of the development of the tissues of plants has been made, is a charge so serious that simple justice must allow the author a chance to plead not guilty.

In answer to several of these charges, it is only necessary to refer to numerous German, French and English text-books whose authority rests upon



original monographs. For example, the definition of bark, which is criticised, differs in no essential point from that given by De Bary in his text-book on anatomy and repeated by Vines in his text-book of botany, published in 1895. In fact, the same definition was given in an article on "Cork Wings," which was printed in the BOTANICAL GAZETTE in 1888. The expression objected to in regard to the formation of the cambium ring is a very common one in numerous German books, and its truthfulness has never before been called in question, at least to the author's knowledge. This is also true of the statement made concerning monocotyledonous stems, namely, that they may change from the monocotyledonous to the dicotyledonous type. It is not quite so evident perhaps that the tracheids and accompanying cells may be called the assistants of the ducts and sieve-tubes. Even here the author can lay no claim to originality. Almost all modern text-books of plant physiology contain a similar statement or intimate that such is the fact. The phloem carries the prepared food about the plant, the sieve-tubes the insoluble, the accompanying cells the soluble portions; while whatever may be the function of the ducts it is admitted by all authoritative writers that the tracheids aid them in this function, or, in certain cases, supply the place of the ducts which are wanting. With reference to the "confusion regarding the elements of secondary bast," etc., it is, perhaps, only necessary to say that the statements made on this subject were the result of the comparative study of all the leading text-books as well as numerous original articles, and, we may add, a modest amount of original work on the part of the author. The language was made as simple as possible, and it may be that the entire omission of the customary technical phraseology caused the reviewer to suppose something must be wanting.

For one familiar with the facts of plant anatomy by years of study, not only of text-books but also of the plants themselves, it is hard to conceive how a candid critic could take exception to these statements. Indeed, if the author may not be considered "authority" on these subjects she has erred in company with the illustrious scientists of the present and past, with such men as Naegeli, Cramer, De Bary, Sanio, Vines, Reinke and Schwendener.

The author heartily agrees with the reviewer in wishing the book were better and also in the hope that a revision, in the near future, may be made which will render it more useful. EMILY L. GREGORY, *New York City*.

[The reviewer must call attention to the fact that as regards the "bark" he merely raised the question whether it was the *Borke* of the Germans which is "commonly called bark." He is aware that in English translations of German works this word has been translated *bark*, but he is unwilling to accept "authority" on this question, with which he may deal elsewhere shortly.

As to the cambium ring: since the completion of the ring by the formation of interfascicular cambium *precedes* the formation of secondary bundles, the reviewer cannot understand how the ring "may be said to be formed *either*



by the intercalation of new bundles *or* by the formation of interfascicular cambium." And that "numerous German books" say it in no wise enlightens the obtuse critic.

Dr. Gregory misses the point of the criticism regarding the so-called change in structure of a stem as it grows older from the mono- to the dicotyledonous type. The fact was not questioned. But does it not strike her as a poor sort of classification (albeit widely used) which makes no better provision for such a fact? Is it possible to maintain as types of structure those which are subject to so many exceptions as these?

The statement that "there is certainly confusion regarding the secondary bast fibers and the similar tissues arising from the pericycle" is based not upon simplicity of language but upon the author's inclusion of all thick-walled fibers and stone cells in the "elements of the secondary phloem" (p. 129). If they are not included by her in that category, then there is the entire omission of any statement that such tissues often belong to the pericycle instead of to the secondary phloem; in which case the confusion would be transferred from the author to the students using the book.—ED.]